PTO/SB/

1743

PTO/SB/17 (10-03)

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)

\$) 180

	Complete if Known	
Application Number	09/687,401	
Filing Date	October 13, 2000	
First Named Inventor	Ian David Manger	
Examiner Name	1743	
Art Unit	Soderquist, Arlen	
Attorney Docket No.	020174-002300US	

METHOD OF PAYMENT (check all that apply)	FEE CALCULATION (continued)					
Check Credit Card Money Order Other None	3. ADD	ITIONAL I	FEES			
Deposit Account:	Large	Entity	Small	Entity		
Deposit Account 20-1430	Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
Number 20-1430	1051	130	2051	65	Surcharge - late filing fee or oath	
Deposit	1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
Account Townsend and Townsend and Crew LLP	1053	130	1053	130	Non-English specification	
Name	1812	2,520	1812	2,520	For filing a request for reexamination	
The Director is authorized to: (check all that apply) Charge fee(s) indicated below Charge fee(s) indicated below Credit any overpayments	1804	920*	1804	920*	Requesting publication of SIR prior to	
	1005	4.040*	4005	4 0 40*	Examiner action	\vdash
Charge any additional fee(s) or any underpayment of fee(s)	1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.	1251	110	2251	55	Extension for reply within first month	
FEE CALCULATION	1252	420	2252	210	Extension for reply within second month	
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1. BASIC FILING FEE	1253	950	2253	475	Extension for reply within third month	
Large Entity Small Entity	1254	1,480	2254	740	Extension for reply within fourth month	
Fee Fee Fee Fee Description Fee Paid Code (\$) Code (\$)	1255	2,010	2255	1,005	Extension for reply within fifth month	
1001 770 2001 385 Utility filing fee	1401	330	2401	165	Notice of Appeal	
1002 340 2002 170 Design filing fee	1402	330	2402	165	Filing a brief in support of an appeal	
1003 530 2003 265 Plant filing fee	1403	290	2403	145	Request for oral hearing	\vdash
1004 770 2004 385 Reissue filing fee					Petition to institute a public use	\vdash
1005 160 2005 80 Provisional filing fee	1451	1,510	1451	1,510	proceeding	
SUBTOTAL (1)	1452	110	2452	55	Petition to revive – unavoidable	
(<u>v</u>)	1453	1,330	2453	665	Petition to revive – unintentional	
2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE	1501	1,330	2501	665	Utility issue fee (or reissue)	
Fee from	1502	480	2502	240	Design issue fee	
Extra Claims below Fee Paid	1503	640	2503	320	Plant issue fee	
Total Claims = = = = = = = = = = = = = = = = = = =	1460	130	1460	130	Petitions to the Commissioner	
Independent Claims -** = X =	1807	50	1807	50	Petitions related to provisional applications	
Multiple Dependent	1806	180	1806	180	Submission of Information Disclosure Stmt	180
Large Entity Small Entity	8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
Fee Fee Fee Fee Code (\$) Code (\$)	1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))	
1202 18 2202 9 Claims in excess of 20 1201 86 2201 43 Independent claims in excess of 3	1810	770	2810	385	For each additional invention to be	\vdash
1201 86 2201 43 Independent claims in excess of 3 1203 290 2203 145 Multiple dependent claim, if not paid			'`		examined (37 CFR § 1.129(b))	
1204 86 2204 43 ** Reissue independent claims over original patent	1801	770	2801	385	Request for Continued Examination (RCE)	
1205 18 2205 9 ** Reissue claims in excess of 20 and over original patent	1802	900	1802	900	Request for expedited examination of a design application	
SUBTOTAL (2) (\$)	Other fe	e (specify)	-)			
**or number previously paid, if greater; For Reissues, see above	*Reduce	ed by Basi	c Filing I	Fee Paid	SUBTOTAL (3) (\$)180	

SUBMITTED BY Complete (if applicable)						
Name (Print/Type)	Scott L Ausenhus	Registration No. (Attorney/Agent)	42,271	Telephone	303-571-4000	
Signature	nature sett luceusus				6-16-04	

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	09/687,401	
Filing Date	October 13, 2000	
First Named Inventor	Ian David Manger	
Art Unit	1743	
Examiner Name	Soderquist, Arlen	
Attorney Docket No.	020174-002300US	

	ENCLOSURES (Check all that apply)							
\boxtimes	Fee Transmittal F	Form		Drawing(s)		After Allowa to Group	ance Communication	
	Fee Atta	ched		Licensing-related Papers			nmunication to Board and Interferences	
	Amendment/Rep After Fine Affidavits Extension of Time Express Abandor Information Discl	al s/declaration(s) e Request nment Request		Petition Petition to Convert to a Provisional Application Power of Attorney, Revocation Change of Correspondence Address Terminal Disclaimer Request for Refund CD, Number of CD(s)	Return	Appeal Noti Proprietary Status Lette Other Encloidentify belo Postcard, o	osure(s) (please	
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PATENT

Attorney Docket No.: 020174-002300US

1 8 7004 Commissioner for Patents P. Box 1450

andria, VA 22313-1450

on JUNE 16, 2004

TOWNSEND and TOWNSEND and CREW LLP

By: Nicole M. Wartell

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ian David Manger et al.

Application No.: 09/687,401

Filed: October 13, 2000

For: MICROFLUIDIC-BASED ELECTROSPRAY SOURCE FOR

ANALYTICAL DEVICES

Examiner: Soderquist, Arlen

Art Unit: 1743

SUPPLEMENTAL INFORMATION
DISCLOSURE STATEMENT UNDER 37

CFR §1.97 and §1.98

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

The references cited on attached form PTO/SB/08A and PTO/SB/08B are being called to the attention of the Examiner. Copies of the references are enclosed.

It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no

Ian David Manger et al. Application No.: 09/687,401

Page 2

representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

This IDS is being filed before the mailing date of the final Office Action or Notice of Allowance.

Please charge the IDS fee of \$180 to Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,

Scott L. Ausenhus Reg. No. 42,271

TOWNSEND and TOWNSEND and CREW LLP Two Embarcadero Center, Eighth Floor San Francisco, California 94111-3834

Tel: 303-571-4000 Fax: 303-571-4321

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

	Complete if Known
Application Number	09/687,401
Filing Date	October 13, 2000
First Named Inventor	Manger, lan David
Art Unit	1743
Examiner Name	Soderquist, Arlen
Attorney Docket Number	020174-002300US

		Document Number			
Examiner Initials*	Cite No.1	Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	US-3,570,515	03-16-1971	Kinner	
	A2	US-3,747,628	07-24-1973	Holster et al.	
	А3	US-4,046,159	09-06-1977	Pegourie	
	A4	US-4,119,368	10-10-1978	Yamakazi	
	A5	US-4,153,855	05-08-1979	Feingold	
	A6	US-4,245,673	01-20-1981	Bouteille et al.	
	A7	US-4,434,704	03-06-1984	Surjaatmadja	
	A8	US-4,898,582	02-06-1990	Faste	
	A9	US-5,085,562	02-04-1992	Van Lintel	
	A10	US-5,088,515	02-18-1992	Kamen	
	A11	US-5,096,388	03-17-1992	Weinberg	
	A12	US-5,126,115	06-30-1992	Fujita et al.	
	A13	US-5,164,558	11-17-1992	Huff et al.	
	A14	US-5,171,132	12-15-1992	Miyazaki	
	A15	US-5,224,843	07-06-1993	Van Lintel	
	A16	US-5,259,737	11-09-1993	Kamisuki et al.	
	A17	US-5,265,327	11-30-1993	Faris et al.	
	A18	US-5,290,240	03-01-1994	Horres, Jr.	-
	A19	US-5,336,062	08-09-1994	Richter	
	A20	US-5,346,372	09-13-1994	Naruse et al.	
	A21	US-5,375,979	12-27-1994	Trah	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	A22	US-5,376,252	12-27-1994	Ekstrom	
	A23	US-5,400,741	03-28-1995	DeTitta et al.	
	A24	US-5,423,287	06-13-1995	Usami et al.	
	A25	US-5,529,465	06-25-1996	Zengerle et al.	
	A26	US-5,593,130	01-14-1997	Hansson et al.	
	A27	US-5,642,015	06-24-1997	Whitehead et al.	
	A28	US-5,659,171	08-19-1997	Young et al.	
	A29	US-5,660,370	08-26-1997	Webster	
	A30	US-5,681,024	10-28-1997	Lisec et al.	
	A31	US-5,705,018	01-06-1998	Hartley	
	A32	US-5,759,014	06-02-1998	Van Lintel	
	A33	US-5,775,371	07-07-1998	Pan et al.	
	A34	US-5,836,750	11-17-1998	Cabuz	
	A35	US-5,842,787	12-01-1998	Kopf-Sill et al.	
	A36	US-5,875,817	03-02-1999	Carter	
	A37	US-5,876,187	03-02-1999	Afromowitz	
	A38	US-5,932,799	08-03-1999	Moles	
	A39	US-5,942,443	08-24-1999	Parce et al.	
	A40	US-6,007,309	12-28-1999	Hartley	-
	A41	US-6,043,080	03-28-2000	Lipshutz et al.	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional).
Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04.

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For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
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Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08A (08-03)

Complete if Known Substitute for form 1449A/PTO 09/687,401 **Application Number** INFORMATION DISCLOSURE Filing Date October 13, 2000 STATEMENT BY APPLICANT First Named Inventor Manger, Ian David Art Unit 1743 (use as many sheets as necessary) Examiner Name Soderquist, Arlen 020174-002300US of **Attorney Docket Number** Sheet

U.S. PATENT DOCUMENTS+						
		Document Number				
Examiner Initials*	Cite No.1	Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
	A42	US-6,123,769	09-26-2000	Sanjoh		
	A43	US-6,155,282	12-05-2000	Zachary et al.		
	A44	US-6,174,365 B1	01-16-2001	Sanjoh		
	A45	US-6,296,673 B1	10-02-2001	Santarsiero et al.		
	A46	US-6,409,832 B1	06-25-2002	Weigl et al.		

				OREIGN PA	TENT DOCUME	NTS		
Examiner	Examiner Cite	Foreign Patent Document				Name of Patentee or	Pages, Columns, Lines, Where Relevant	
Initials*	No.1	Country Code ³	Number ⁴	Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Applicant of Cited Document	Passages or Relevant Figures Appear	T⁵
	B1	EPO	EP 0 592 0	94 A2	04-13-1994			
	B2	EPO	EP 0 703 3	64 A1	03-27-1996			
	B3	EPO	EP 0 706 0	04 A2	04-10-1996			
	B4	EPO	EP 0 779 4	36 A2	06-18-1997			
	B5	EPO	EP 0 829 3	60 A2	03-18-1998			
	B6	EPO	EP 0 845 6	03 A1	06-03-1998			
	B7	EPO	EP 0 999 0	55 A2	05-10-2000			
	B8	GB	2 155 152	Α	09-18-1985			
	B9	GB	2 308 460	Α	06-25-1997			
	B10	PCT	WO 98/070	69 A1	02-19-1998			
	B11	PCT	WO 99/170	93 A1	04-08-1999			
	B12	PCT	WO 00/603	45 A1	10-12-2000			
	B13	PCT	WO 02/304	86 A2	04-18-2002	·		

Examiner Signature	Date Considered	

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Sheet

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of

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Application Number 09/687,401					
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First Named Inventor	Manger, lan David				
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Examiner Name	Soderquist, Arlen				
Attorney Docket Number	020174-002300US				

		NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item	
Examiner Initials *	Cite No. ¹	(book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Τ²
	C1	AHN et al., "Fluid Micropumps Based on Rotary Magnetic Actuators," Proceedings of 1995 IEEE Micro Electro Mechanical Systems Workshop (MEMS '95), held in Amsterdam, Netherlands on 1/29-2/2/1995, pgs. 408-412.	
	C2	BENARD et al., "A Titanium-Nickel Shape-Memory Alloy Actuated Micropump," Proceedings of Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, held in Chicago, II., 6/16-19/1997, 1:361-364 (1997).	
, ,	СЗ	BRECHTEL et al.; "Control of the electroosmotic flow by metal-salt-containing buffers", J Chromatography A, 1995, pp. 97-105, Vol. 716	
	C4	BRYZEK et al.; "Micromachines on the March", IEEE Spectrum, 1994, pp. 20-31, Vol. 31, No. 5	
	C5	BUCHAILLOT et al.; "Silicon nitride thin films Young's modulus determination by an optical non-destructive method", Jpn. J Appl Phys, 1995, pp. L794-L797, Vol. 36, No. 2:6B	
	C6	CHIU et al.; "Patterned Deposition of Cells and Proteins onto Surfaces by Using Three-Dimensional Microfluidic Systems", Proc. Natl. Acad. Sci., 2000, pp. 2408-2413, Vol. 97, No. 6	
	C7	CHOU et al. "A microfabricated device for sizing and sorting DNA molecules", Applied Physical Sciences, Biophysics, Proc. Natl. Acad. Sci., 1999, pp. 11-13, Vol. 96, U.S.A.	
,	C8	DELAMARCHE et al.; "Patterned delivery of immunoglobulins to surfaces using microfluidic networks", Science, 1997, pp. 779-781, Vol. 276	
	С9	DUFFY et al. "Patterning Electroluminescence Materials with Feature Sizes as Small as 5µm Using Elastomeric Membranes as Masks for Dry Lift-Off", Advanced Materials, 1999, pp. 546-552, Vol. 11, No. 7	
	C10	DUFFY et al. "Rapid Prototyping of Microfluidic Switches in Poly(dimethylsiloxane) and Their Actuation by Electro-Osmotic Flow" Journal of Microeng, 1999, pp. 211-217, Vol. 9	
	C11	EFFENHAUSER et al.; "Integrated capillary electrophoresis on flexible silicone microdevices: Analysis of DNA restriction fragments and detection of single DNA molecules on microchips", Anal. Chem, 1997, pp. 3451-3457, Vol. 69.	
	C12	EFFENHAUSER et al.; "Integrated chip-based capillary electrophoresis", Electrophoresis, 1997, pp. 2203-2213, Vol. 18	
	C13	FAHRENBERG et al. "A microvalve system fabricated by thermoplastic molding", J Micromech Microeng, 1995, pp.169-171, Vol. 5	
	C14	FU et al.; "A microfabricated fluorescence-activated cell-sorter", Nature Biotechnology, 1999, pp. 1109-1111, Vol. 17	
Examiner		Date	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Examiner Name	Soderquist, Arlen
Attorney Docket Number	020174-002300US

		NON PATENT LITERATURE DOCUMENTS	
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	C15	GASS et al., "Integrated flow-regulated silicon micropump," Sensors and Actuators A Physical, 1994, p. 335-338, Vol. 43.	
	C16	GERLACH, T., "Pumping Gases by a Silicon Micro Pump with Dynamic Passive Valves," Proceedings of Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, held in Chicago, II., 6/16-19/1997, pp. 357-360, Vol. 1.	
	C17	GOLL et al., "Microvalves with bistable buckled polymer diaphragms," J. Micromech. Microeng., 1996, pp.77-79, Vol. 6	
	C18	GRAVESEN et al.; "Microfluids- A Review", Journal Micromech Microeng, 1993, pp. 168-192, Vol. 3	
	C19	HARRISON et al., "Micromachining a Miniaturized Capillary Electrophoresis-Based Chemical Analysis System on a Chip," Science, 1993, pp.895-897, Vol. 261	
-	C20	HENION, JACK et al. "Capillary Electrophoresis/Mass Spectrometry: From One Meter Capillaries to Chip-Based Devices" 1999	
-	C21	HOPFGARTNER, GERARD et al. "Exact Mass Measurement of Product Ions for the Structural Elucidation of Drug Metabolites with a Tandem Quadrupole Orthogonal-Acceleration Time-of-Flight Mass Spectrometer" <i>Journal of The American Society for Mass Spectrometry</i> , Dec. 1999, pp. 1305-1314, Vol. 10.	
	C22	HORNBECK et al., "Bistable Deformable Mirror Device," Spatial Light Modulators and Applications 1988 Technical Digest Series, Volume 8, Postconference Edition, Summaries of papers presented at the Spatial Light Modulators and Applications Topical Meeting, June 15-17, 1988, Optical Society of America, pgs. 107-110.	
	C23	HOSOKAWA et al., "Handling of Picoliter Liquid Samples in a Poly(dimethylsiloxane)-Based Microfluidic Device," Anal. Chem., 1999, 71(20):4781-4785	
	C24	IKUTA et al., "Three dimensional micro integrated fluid systems (MIFS) fabricated by stereo lithography," IEEE Kyushu Institute of Technology, 1994, pp. 1-6.	
	C25	JACOBSON et al., "High-speed separations on a microchip," Anal. Chem., 1994, 66(7):1114-1118.	
	C26	JACOBSON et al., "Microfluidic Devices for Electrokinetically Driven Parallel and Serial Mixing," Anal. Chem., 1999, 71(20):4455-4459.	
	C27	JERMAN, H., "Electrically-Activated, Normally-Closed Diaphragm Valves," Proceedings of Transducers '91, 1991 International Conference on Solid-State Sensors and Actuators, pages 1045-1048 (1991).	

1	Examiner	Date	1
1	Signature	Considered	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	C28	JUNG et al., "Chemical and Physical Interactions at Metal/Self-Assembled Organic Monolayer Interfaces," Critical Reviews in Solid State and Material Sciences, 1994, pp. 1-54, Vol. 19, No. 1.	:
	C29	KENIS et al. "Microfabrication Inside Capillaries Using Multiphase Laminar Flow Patterning," Science, 1999, 285:83-85.	
	C30	KIM, ENOCH et al., "Micromolding in Capillaries: Applications in Material Science," J. American Chemical Society, 118:5722-5731 (1996).	
	C31	KOPP et al. "Chemical Amplification: Continuous-Flow PCR on a Chip", Science, 1998, 280:1046-1048.	
	C32	KUHN et al. "Silicon Charge Electrode Array for Ink Jet Printing", IEEE Transactions on Electron Devices, 1978, pp. 1257-1260, Vol. ED-25, No. 10.	
	C33	LIN et al. "Free-Space Micromachined Optical Switches for Optical Networking," IEEE J. Selected Topics in Quantum Electronics, 1999, pp. 4-9, Vol. 5, No. 1.	
	C34	LÖTTERS et al. "The mechanical properties of the rubber elastic polymer polydimethylsiloxane for sensor applications," J. Micromech. Microeng., 1997, 7:145-147.	
	C35	LUCY et al., "Characterization of the Cationic Surfactant Induced Reversal of Electroosmotic Flow in Capillary Electrophoresis," Anal. Chem., 1996, pp. 300-305, Vol. 68.	
	C36	MALUF, N., An Introduction to Microelectromechanical Systems Engineering, Dec. 1999, pages 42-45, Artech House Publishers, Boston London.	
	C37	MULLER et al., "Surface-Micromachined Microoptical Elements and Systems," Proceedings of IEEE, 1998, 86(8):1705-1720.	
	C38	New Objectives web site: "What is Electrospray" at www.newobjectives.com/electrospray/electrospray.html on 09/22/2000	
	C39	OLSSON et al., "Simulation Studies of Diffuser and Nozzle Elements for Valve-less Micropumps," Proceedings of Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, held in Chicago, II., 6/16-19/1997, 2:1039-1042 (1997).	
	C40	PETHIG & MARKX "Applications of dielectrophoresis in biotechnology," Tibtech, 15:426-432 (1997).	
	C41	PROTANA web site: "NanoES Products" from www.protana.com/products/default.asp on 09/19/2000.	
	C42	QIN et al., "Photolithography with transparent reflective photomasks," J. Vac.Sci. Technology, 16(1):98-103 (1998).	

Examiner Date Signature Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Application Number	09/687,401	
Filing Date	October 13, 2000	
First Named Inventor	Manger, lan David	
Art Unit	1743	
Examiner Name	Soderquist, Arlen	
Attorney Docket Number	020174-002300US	

•		NON PATENT LITERATURE DOCUMENTS	_
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
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Examiner	Date	
Signature	Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

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